Eli Bitzer

Postgraduate research supervision: more at stake than research training

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Is research training of students the key responsibility of postgraduate supervisors? While many academics would agree, supervisory roles might involve more than training postgraduate students. This article argues for the importance of research training as well as development interventions for supervisors. Drawing on relevant conceptions and a proposed supervisor development scheme, twenty-one supervisors reported how their supervisory roles have changed after interventions in five developmental areas. Similarly, supervisors who participated in a four-day supervision conference reported important developmental gains. The article proposes that supervisors seem to assess their supervisory roles and responsibilities more holistically and critically after and as a result of development interventions.

Nagraaadse studieleiding: meer op die spel as navorsingsopleiding

Is navorsingsopleiding die kernverantwoordelikheid van nagraadse studieleiers? Hoewel heelwat akademici hiermee akkoord sal gaan, behels nagraadse studieleidingsverantwoordelikhede waarskynlik heelwat meer as bloot navorsingsopleiding. Hierdie artikel voer aan dat beide navorsingsopleiding en eie ontwikkeling as studieleier belangrik blyk te wees. Op grond van relevante idees in hierdie verband en 'n voorgestelde studeleierontwikkelingskema het een-en-twintig studieleiers in 'n ondersoek aangetoon hoe hul persepsies van hul eie studieleidingsrolle in vyf belangrike opsigte na aanleiding van intervensies verander het. Eweneens het studieleiers wat aan 'n vierdaagse konferensie oor studieleiding deelgeneem het, belangrike ontwikkelingswinste aangetoon. Die artikel stel voor dat studieleiers waarskynlik hul studieleidingsrolle en -veranwoordelikhede meer holisties en krities benader na aanleiding van ontwikkelingsintervensies.

Prof E Bitzer, Centre for Higher and Adult Education, Stellenbosch University, Private Bag X1, Matieland 7602; emb2@sun.ac.za

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SUN MEDIA BLOEMFONTEIN

The practice of supervising postgraduate students has been described in various ways. One description is to facilitate advanced studies as "the normal path for entry into the research and academic community" (Johnston 1995: 281), and those who graduate with higher degrees could expectedly contribute to society and benefit personally from them (Fitzsimons 1997: 35). Andresen (1999: 30) is adamant that postgraduate research provides "a rite of passage" into the academic community:

> It seems absolutely obvious to me that the preparation for, engagement in, and successful emergence from the postgraduate research process uniquely epitomises the transition from non-academic to academic status. In other words, the rite of passage represented by the postgraduate research process is the very point at which our academic system reproduces itself. It is the point at which scholarship gives birth to scholarship [...] the point at which scholarship renews itself amongst the present generation of scholars.

As far as supervisory practice is concerned, there is ample evidence to suggest that supervisors frequently base their approach on their own, often unexamined, experiences as a research student (Cullen *et al* 1994: 67, Bartlett & Mercer 2001: 77). It is important, however, not simply to reflect, but to reflect critically on past practice in the light of research evidence and theoretical frameworks derived from a knowledge of the literature on supervision. The importance of supervisors developing a repertoire of knowledge and understanding of different aspects of supervisory practice cannot be too strongly emphasised. If supervisors are to be effective, they must be capable of critically conversing about supervision itself with colleagues and with students. This conversation will also need to encompass a critical appraisal of the supervisor's interpersonal and communication skills. Supervisors must be open to gaining critical feedback on their skills and performance as coaches and mentors.

Much of the literature recognises postgraduate supervision as a practice involving complex academic and interpersonal skills, including guiding postgraduate students towards sound proposal preparation, methodological choices, documenting and publishing their research, maintaining both supportive and professional relationships,

as well as reflecting on the research process.[1] As far as supervision is concerned, thoughtfully using reflection strategies such as challenging dominant ideas or redefining a problem requires higher order thinking and deep approaches to learning (Biggs 1987: 27, Ramsden 1992: 94). These requirements pose challenges to both students and supervisors, asking questions as to whether supervision implies that research training should be the sole focus of postgraduate supervision.

1. Research training

Pearson & Brew (2002: 136-8) proposed that various stakeholders initiated a move from implicit to explicit skills formation in "research training".. For example, industry and employer groups have requested broader skill sets for research and related employment. Similarly, some students are looking at career options in an increasingly fluid and tight job market. There is also a concern within universities that research training has become too narrow. Several authors (Cullen *et al* 1994: 46, Gumport 1999: 432, Eley & Jennings 2005: 3-4) are concerned that research results are produced at the risk of limiting the educational function. Apparently this is more likely where students are being used to carry out funded research work, including commercial projects. High technical standards may be achieved by students, but without a grasp of deeper intellectual issues.

When the aim is for broader skill sets for research students, there is often a tendency to focus on what is perceived as missing. In some contexts such as in Australia and Britain, this is often identified as the area of so-called "generic"or "employable" skills that vary from communication and presentation skills to practical laboratory management (Pearson & Brew 2002: 136). Pearson & Brew (2002: 137) also point out that the problem with skills lists is that they range from the general to the particular, and mix technical research skills with those supposed to enhance employability more generally. The lack of any conceptual framework of what constitutes research training

1 Cf McMichael 1993: 17, Russell 1994: 33, Aspland *et al* 1999: 144-6, Craswell 1999: 34, Heath 2002: 52, Taylor 2002: 65, Bak 2004: 76, Mapesela & Wilkinson 2005: 1241.

underpinning such lists means that it is difficult to identify priorities and appropriate training strategies, and to decide who is responsible for what aspects of a research training programme. The danger of viewing skills as "extras" is to subscribe to an "add-on model" in which these skills are regarded as additional content competing with the existing curriculum and posing a problem of conflicting priorities for students in the use of student time and effort.

A further constraint of defining sets of generic skills such as time or project management skills is that it neglects to consider that a complex outcome is required; in other words, a skilful performer rather than someone who can list his/her skills; someone who knows not only about what to do but also why things should be done and how to apply that in practice. One attempt to map the skilful performer identifies the "complete scientist" as someone who will be an expert in his/her particular field; be resourceful and able to seek what s/he needs to know and use; have a grasp of the bigger picture and networks to use so that s/he knows what is what, and relevant, and be adaptable/prepared to change techniques and/or research areas (Pearson & Brew 2002: 137).

For universities and those who are responsible for the quality of research training and its coordination, supervision becomes a matter of providing a high-quality research learning environment for students. The following issues emerge: the accessibility of resources (including expertise) essential to conduct high-quality research; the flexibility/choice of learning and research conditions; the opportunity for engagement of students with practising researchers and a community of peers/experts/others; the responsiveness to students' career goals, and the opportunities and demands of relevant employment markets (Pearson 1999: 282). In this complex environment, with competing demands on time, it is even more critical for supervisors to assist students in navigating viable pathways to accommodate their individual learning needs and career goals (Pearson & Brew 2002: 138) as well as overcoming multiple challenges for both supervisors and students.

2. Supervisor and student challenges

Good supervision is the key to successful postgraduate research training; yet this teaching-learning process is poorly understood. This may be an important reason why students experience the process as extremely complex and often unstable (Grant 2001: 177). Therefore, support and training for supervisors are high on the agenda in many institutions. A collection of papers in a well-orchestrated book (Zuber-Skerritt & Ryan 1994) provides ample proof of this, while more recently, two linked schemes have been developed in Australia to provide better support for academics involved in the supervision of postgraduate students (Cryer & Mertens 2003: 95). One scheme constitutes a training and accreditation programme for supervisors (Pearson & Brew 2002: 147) and the other provides a web gateway on research supervision. Both involve advice, peer discussion for training, and recognition for the roles and contributions of academic staff to quality supervision.

Such initiatives imply that postgraduate supervision, like other teaching practices, is not without its quota of challenges. Satisfaction with professions and academic pressures are two factors that come to mind. McInnis (1999: 2), for instance, found that levels of job satisfaction among senior academics in Australia had fallen from 67% in 1993 to 51% in 1999. This trend was confirmed in a later survey by the National Tertiary Education Union (Edwards 2002: 7). In addition, supervisors increasingly find themselves supervising mature-age professionals who possess equal or greater knowledge of the research subject, thus countering the traditional "apprenticeship" model of doctoral studies (Le Grange & Newmark 2003: 52). Evans (2001: 280) also pointed out that the majority of doctoral enrolments in Britain, Europe and the USA are in professional and practitioner-oriented fields. Similarly, in many countries and in developing countries, in particular, supervisors find that postgraduate students are less prepared for higher degree studies than in the past (Grant 2001: 182, Brown 2007: 240). This results in increasing and unprecedented pressures, particularly on young and inexperienced supervisors.

Postgraduate students also face a number of challenges in their studies. Several authors indicate that the relationship with supervisors is a key factor in study success, while over 30% of postgraduate students in one study reported that "uncomfortable events" had an effect on their studies.[2]

Relationships between background characteristics and dissertation progress of doctoral candidates have been scrutinised (Faghigi *et al* 1999), indicating the impact of research preparation, research environments, student-supervisor relationships and self-efficacy on study success and time to graduate. Other studies point out that female doctoral students are reportedly most affected by interpersonal factors whereas academic factors were more prominent for males (cf Conrad 1994: 23, Lussier 1995: 134, Seagram *et al* 1998: 321-4). Postgraduates also indicate multiple responsibilities as an important impacting factor on study progress and success (Strauss 2001: 15). Overall, evidence shows four major challenges involving postgraduate study experiences: relationships with supervisors, the importance of support structures, study isolation and confusion over resources (cf Johnston & Broda 1996: 275, Aspland *et al* 1999: 142).

Most research findings on postgraduate students' study experiences seem to confirm the need for further in-depth studies on supervision practices and how they could be improved for both students and supervisors.

3. Supervision practices

An important step towards improving supervision practices is to define what postgraduate supervision means. This step runs counter to the tradition of supervision as implicit and unexamined processes (Pearson & Brew 2002: 139). In many instances, supervision has implied an "absent presence" in supervision, where the role of the supervisor as researcher has taken precedence over other roles (Evans &

2 Cf Seagram *et al* 1998: 327, Dinham & Scott 1999: 15, Holbrook & Johnston 1999: 45, Wisker & Sutcliffe 1999: 78-9.

Green 1995: 2). In reaction to this traditional approach, the teaching role of the supervisor has been emphasised:

> [T]he relationship with a supervisor is different from that between two academic colleagues working on related research projects. It has to be seen as a form of teaching. Like other forms, it raises questions about curriculum, method, teacher/student interaction, and educational environment (Connell 1985: 38).

This complex "teaching" role (cf Evans & Pearson 1999: 187, Wisker 2005: 41-4) can include the roles of mentor and "master" (as in master and apprentice). While research students might be highly experienced in their professions or industries, the role might shift to "critical friend", guiding the "student" through the scholarly maze to examination and graduation, or "gate-keeper of science", ensuring that the "student" completes all the necessary conditions before entry (Evans & Pearson 1999: 196)

Identifying and elaborating the roles of the supervisor can be useful for supervisors in their discussion of practices. However, it is not so useful for determining the content of supervisor development programmes (Pearson & Brew 2002: 139). Not only is the role of the supervisor complex, as research practice changes and supervisory arrangements become more varied, but it is also changing (Pearson 2001). Another danger of focusing on roles is that it can strengthen the focus on personal dyadic relationships, a feature of traditional informal and implicit research training practice. A focus on roles does not provide adequate grounds for discriminating among various responsibilities and practices in research arenas, where many others, in addition to the formal principal supervisor, may be involved in supervision. A more productive approach is to focus on what supervisors are doing and why (Cullen *et al* 1994: 67). This anchors the discussion in supervision practices and the behaviour of participants, ensuring that their learning is situated in their specific research contexts.

It is important to focus on the purpose of supervisory practices. If it is agreed that the overriding goal of all those with supervisory responsibilities is to facilitate the student becoming an independent professional researcher and scholar in his/her field, capable of adapting to various research arenas, whether university- or industry-based,

then the supervisor needs to foster such development explicitly (cf Pearson & Brew 2002: 139, Wisker *et al* 2008: 8-10). Similarly, Holdaway (1996: 71) distinguished between "primary" activities such as research, required coursework, reading, reflecting, discussing, and writing, and secondary activities such as optional coursework, teaching, publishing, preparing conference papers, and research proposals. What is appropriate, central or peripheral for any individual student will obviously vary. However, viewing the development of a relevant programme of study as being dynamic and dependent on negotiation between the individual student and his/her supervisor avoids the trap of setting general priorities which may not suit all students. At another level, negotiation will take place within an iterative cycle of critical reflection and action, both in respect of the research project and in respect of intellectual and career development – a conversation, in essence, on what the student is doing, what s/he is learning, and his/her evolving career goals (Pearson & Brew 2002: 139).

Postgraduate supervision practices normally draw on two major traditions. First, it draws on research and practices in the field of adult learning (Ryan 1996: 172). Research into the ways in which adults learn (Boud & Griffin 1987: 67-9, Salmon 1992: 36) to a large extent question the appropriateness of taking a paternalistic stance, which is common with many supervision models based on experience in undergraduate teaching. Developments taking place in the undergraduate curriculum to ensure greater autonomy for students in their learning, drawing on adult- and work-based learning approaches, do not appear to have influenced supervisors' attitudes to higher degree supervision (Ryan 1996: 75, Delamont *et al* 2004: 10-4). Strategies such as, for example, the use of negotiated contracts, elements of independent study, and problem- or scenario-based approaches are highly relevant (Wisker 2008: 1-3). These strategies address the need to recognise the wide range of individual differences among students, for example, with respect to gender, age, ethnicity and life circumstances (cf also Ryan & Zuber-Skerritt 1999: 6-7).

Secondly, supervision models have also drawn on achieving skilful performance, with an emphasis on developing expertise. These models stem from craft and professional education. Some of the de-

sired teaching strategies for postgraduate education are often referred to as coaching. Similarly, mentoring is the process of ensuring that students expand their intellectual horizons, learn to network professionally, and enrich their learning experience for their future careers. However, the distinction between coaching and mentoring and their nature and purpose is usually obscured by their being ill-defined in the context of research supervision (Pearson & Brew 2002: 140).

Coaching and mentoring may implicitly suggest dyadic relationships. Yet research students can and do depend on a range of people to provide various forms of assistance in learning research expertise and how to be a professional researcher. These significant others can be those in a department, a laboratory, a disciplinary network, or a university and its resources. In particular, some coaching has always been carried out by people who do not have formal supervisory responsibilities, for instance postdoctoral researchers, other students and technicians (Pearson 1996: 315). Recently, McCauley & McKnight (1998: 97) highlighted the important contribution of librarians and electronic experts (cf also Mouton 2001: 201-7, Wellington *et al* 2005: 76-9). The significance of these interactions becomes increasingly important if we extend our view of what constitutes research training to include social attributes as outcomes. It is therefore also important to examine some conceptualisations of research and research training that explicitly view the supervision process as a social practice.

In exploring studies of research practices in different disciplinary contexts, Delamont *et al* (1997: 326) argue that the key to understanding what happens in research groups in science is the concept of "pedagogic continuity" which derives from a process of "enculturation" during which newcomers (for example PhD students) learn the socialised skills of, for instance, laboratory work, and through which research problems are transmitted. Various participants contribute to this process over time, so that the continuity is from the process itself, not from individual participants who come and go (Delamont *et al* 1997: 324-5).

The "enculturation" model corresponds to a large extent with the approach to apprenticeship developed by Lave & Wenger (1991) and Wenger (1998a & 2000). In this approach, learning is situated in

communities of practice involving a range of participants with differing histories of membership. This includes established as well as relatively new "masters" and apprentices. Learning occurs through participation in the social practice of the community. The apprentice is a participant in a community of practice, with the special status of a legitimate peripheral participant who is legitimised by a "master" or "sponsor" to participate as a potential member and access the practice without being fully expert. In such settings opportunities for learning are often given structure by work practices instead of by strongly asymmetrical master-apprentice relations (Lave & Wenger 1991: 93, Wenger *et al* 2002: 37-42). Further conceptualisation of "communities of practice" by Wenger provides additional understandings of and insights into the complexity of how people learn "on the job", and the relationship of more structured training, where the learner learns "about what to do", with the learning that occurs in practice, where participants "do things together, negotiate new meaning, and learn from each other" (Wenger 1998b: 102). The value of this approach to apprenticeship is that it offers a conceptualisation of learning that avoids the separation of learning from knowledge production (Guile & Young 1999: 115), a concern often raised by students (Smith 2000: 25-9). This elicits the question of supervisor development and its role in enhancing the nature and quality of postgraduate supervision.

4. Supervisor development

Research supervisors are educating, motivating and leading postgraduate students. Management and leadership education (or training) are, therefore, of particular interest. As with learning research practice there is more to supervisor development than developing technical skills. In the private sector and government departments, there are well-established programmes for leadership development, and in many cases the learning approaches have been noticeably innovative (cf also Schön 1983 & 1987, Senge 1990).

Of particular relevance is an emphasis on learning through self-awareness. Where development programmes accept the principle

that managing oneself is an essential requirement for managing others, gaining feedback on performance and personal reflection is encouraged (Pearson & Brew 2002: 143). This can mean more than focusing on interactions with others and communications skills. First, leaders have to understand how they operate themselves in what Argyris & Schön (1974) refer to as "theories-in-use" as opposed to "espoused theories". Senge (1990: 174-5) uses a similar concept, that of "mental models", in explaining why good intentions and plans often fail: What is practised is often in conflict with deeply held internal images of how supervision should be done, thus limiting supervisors to their familiar ways of thinking and acting.

In supervisor development, the imperative to self-reflect is twofold: one is the need for supervisors, as researchers, to surface their mental models of research practice; the other is, as supervisors, to surface their mental models of supervision. As Pearson (2001: 194) argues that there is thus a need for supervisors to reflect on their own practice and critique research education. Such a critique might include the scrutiny of "specific findings, concepts, theories, assumptions, practices, truth criteria, fundamental perspectives and orientation" and even "the entire apparatus of the discipline as a whole" (Barnett 1990: 44, cf also Pearson & Brew 2002: 143).

Brew (1998, 1999 & 2001) explored senior academics' conceptions of research and how these impact on supervision. In her investigation, academics often used the concept of scholarship to describe their understandings of research. She consequently identified different conceptions of scholarship in the data. Table 1 presents four qualitatively different conceptions of research, namely domino, trading, layer and journey, which delineate the variation in how academic researchers understand this concept. Brew (2001: 144) pointed out that these conceptions describe *what* researchers experience research as being and not the ways researchers do research.

Table 1: Dimensions of conceptions of research

Conception	Structural dimension (what is perceived and how the elements of what is perceived are related to each other)	Referential dimension (the meaning given to what is perceived)
Domino	What is in the foreground are sets (lists) of atomistic things: techniques, problems, and so on. These separate elements are viewed as linking together in a linear fashion.	Research is interpreted as a process of synthesising separate elements so that things fall into place or questions open up.
Layer	What is in the foreground is data containing ideas together with (linked to) hidden meanings	Research is interpreted as a process of discovering, uncovering or creating underlying messages.
Trading	What is in the foreground are products, end points, publications, grants and social networks. These are linked together in relationships of recognition and reward.	Research is interpreted as a kind of marketplace where the exchange of products takes place.
Journey	What is in the foreground are the personal existential issues and dilemmas. They are linked through an awareness of the career of the researcher and viewed as having been explored for a long time.	Research is interpreted as a personal journey of discovery, possibly leading to transformation.

(Adapted from Brew 2001: 280)

Drawing on Brew's initial research, Pearson & Brew (2002: 144) further explored dimensions of scholarship. Table 2 presents dimensions of five qualitatively different ways in which the concept of scholarship is understood. Pearson & Brew labelled these as the quality, preparation, creating, integrating and research conceptions, respectively. The preparation, creating and integrating conceptions share a basic orientation to scholarship, with increasing complexity of conception as one moves from reading to creating to integrating each one, incorporating the main activities in the previous less complex one. For example, the creating conception includes the idea of reading with the addition of new knowledge; the integrating conception includes reading and new knowledge with the addition of dissemination. On the other hand, the quality conception is quite

distinct. In relating to the way things are done rather than what is done, it is holistic in that it can be applied to the other three conceptions. The research conception probably demonstrates the obvious confusion regarding the notion of "scholarship".

Table 2: Dimensions of conceptions of scholarship

Conception	Structural dimension (what is perceived and how the elements of what is perceived are related to each other)	Referential dimension (the meaning given to what is perceived)
Quality	What is in the foreground are activities describing careful work: accurate footnoting, critical thinking, logicality, and so on. They are linked through the concepts of rigour and meticulousness.	Scholarship is interpreted as the way academics demonstrate professionalism.
Preparation	What is in the foreground is the background literature and the activities of reading and learning. They are linked through the idea of providing a context for the research.	Scholarship is interpreted as the preparation for research.
Creating	What is in the foreground are the background literature plus the addition of new ideas and discoveries. They are linked through the idea that the new knowledge has to be fitted into the existing knowledge.	Scholarship is interpreted as the process of adding new knowledge to the existing literature.
Integrating	What is in the foreground are the background literature, the new ideas and discoveries and the processes of dissemination, including publication and teaching. Scholarship is viewed as the integration of these.	Scholarship is interpreted as the process of making a contribution to society through the integration and dissemination of ideas and knowledge.
Research	What is in the foreground are confusions, including ideas from university policies and conceptions of research. There is an effort to try to make sense of confused ideas.	The concept of scholarship does not make any sense on its own. It is equated with research and interpreted as not being a useful concept in itself.

(Adapted from Pearson & Brew 2002: 145)

A somewhat surprising finding of Brew's (2001) study was that different conceptions of research do not seem to be tied to disciplinary differences, although this was initially anticipated (cf Pearson & Brew 2002: 144). All four conceptions of research were present both in scientific and technical disciplines and in the humanities. This is consistent with Becher's (1989) analysis of the culture of academic departments in which he demonstrated that individuals' conceptions of research are a function of a complex set of factors – of which disciplinary allegiance is only one. It was also found that researchers carrying out similar kinds of research (for example, laboratory-based research, collaborative team-based research, individualised investigations) did not necessarily share the same conceptions. This has considerable implications for supervision and means that supervisors cannot assume that students have the same ideas as they have about what they are doing when they are carrying out research projects.

Variation in the conceptualisation of research and scholarship as illustrated by Brew (2001) and Pearson & Brew (2002) challenges stereotypical notions of the nature of research in different academic domains, and provides a discourse to clarify ideas and implications in specific contexts. Supervisors' openness to different conceptions of research and scholarship is apparently crucial in good supervision practices. To ignore the spectrum of implications and to focus uniquely on one way in which research or scholarship is understood may limit the possibilities for successful research and supervision. The characteristic of diverse conceptions opens the debate of how professional development of supervisors should be handled.

5. Professional development interventions for supervisors

One issue that emerges from the discussion about supervision practice thus far is the question of what professional development programmes for supervisors might entail. As a way of demonstrating how the ideas developed by Brew (2001: 280) and Pearson & Brew (2002: 145) may translate into practical terms, they provided an outline of a development programme which would be appropriate

for the development of the skills, knowledge and competencies of supervisors (cf Figure 1). Such an outline would include the rationale, learning outcomes for supervisors, the topics to be covered, approaches to learning and forms of evaluation to be considered in a suggested programme.

The rationale for such a programme in the Australian context was outlined earlier in this article and would include the changes in what research is understood to be, developments in research training and the need to satisfy study and employment outcomes. Concerns about the quality of research training and the move to professionalisation would be other major factors.

In Britain, the Institute for Learning and Teaching in Higher Education (ILTHE) has, since its merger with the Higher Education Academy (HEA), enabled academic staff to gain recognition for professional activities related to supervision. The creation of the TAPPS (Training and Accreditation Programme for Postgraduate Supervisors) scheme was started in 1998 and was initially designed for the biological sciences. It is, however, sufficiently flexible to make provision for other fields of study (Eley & Murray 2009: 173). The purpose of TAPPS is to provide a framework and process for the development, professional accreditation and support of postgraduate research supervisors. The scheme promotes good supervisory practice while recognising supervisors' experience and practice as teachers and mentors. Accredited supervisors are expected to demonstrate that they can develop or agree to a programme of research that is suitable for a research degree; recruit and select an appropriate student for the research programme; plan and agree to an appropriate research supervisory process and team; use an appropriate range of supervisory skills to ensure students' education, attainment and professional development, and provide appropriate support to individual students on academic and pastoral issues (cf Eley & Murray 2009: 174).

Figure 1: Components of a programme for supervisor development

<table>
<tr><th colspan="2">Learning outcomes</th></tr>
<tr><td colspan="2">• Self-awareness of one's own conceptions of research and supervisory practice, contextualised by critical engagement with salient issues in one's own field of research.
• Understanding of what constitutes a productive research learning environment.
• Appreciation of a range of good practice approaches to supervision.
• Extended repertoire of supervisory strategies, critical reflection, situated negotiation, coaching and mentoring.
• Knowledge of institutional requirements and procedures for supervisors and research students, including ethics requirements and safety.
• Practice in evaluating one's own efficacy and competency.
• Enhanced competency in interactional and communication skills, e.g. negotiation, giving supportive and challenging feedback.
• Enhanced understanding and leadership skills for the facilitation of learning in one-to-one and group settings.
• Experience of and familiarity with a range of IT-mediated communication for on/off campus supervision strategies, e.g. listservs, chatrooms, discussion groups.
• Knowledge of the literature on the scholarship of supervision and of relevant policy issues in research education.
• Up-to-date knowledge of stakeholder expectations, e.g. relevant employers, student associations as well as strategies for maintaining dialogue.</td></tr>
<tr><th>Topics</th><th>Approaches to learning</th></tr>
<tr><td>My research practice, supervisory goals and previous experience as a student and a supervisor.
The components of a productive research learning environment, on-campus or distributed.
Basic strategies and responsibilities for supervising candidature within reasonable time limits.
Strategies and structures for negotiating the student's research programme and the supervisory relationship.
The pedagogy of supervision.
Practising interactional and communication skills.
Leadership and management of research groups or postgraduate research programmes.</td><td>Opportunity for experiential learning, reflection and coaching made available for supervisors by pairing new supervisors with experienced ones within a structure for feedback and reflection.
Online access to literature and knowledge of institutional requirements.
Clinical supervision whereby new supervisors discuss their relationships and critical incidents with an experienced supervisor in a developmental programme.
Workshops for supervisors with the opportunity to rehearse strategies and discuss them with others.
Online discussion groups.</td></tr>
</table>

Forms of evaluation
• Feedback from students and senior staff as well as stakeholders by means of questionnaires.
• Feedback from focus groups.
• 360° feedback instruments.
• Exit questionnaires and interviews.

Adapted from Pearson & Brew 2002: 147

In Europe, the Bologna process proposes that the European Higher Education Area (EHEA) be developed by promoting mutual recognition of qualifications, demonstrating transparency of systems and allowing for easier mobility of staff and students across higher education in Europe. In this respect the European Charter for Researchers comprises a set of principles and requirements specifying the roles, responsibilities and entitlements of researchers and supervisors (EC 2005: 15-22). Supervision and supervisory duties are specifically mentioned in the code and also elaborated on in related follow-up reports (EUA 2007: 22). However, no firm scheme for supervisor development seems to be in place.

In South Africa, postgraduate supervisor development is basic compared to the schemes referred to above. At a recent conference on postgraduate supervision, it was hinted that since doctoral training is regarded as one of the building blocks in the research dispensation in South Africa, the training and development of supervisors should be considered by the National Research Foundation (NRF) of utmost importance (Van Jaarsveld 2009). Similarly, at the same conference, the then Chief Director of the Council on Higher Education (CHE) viewed quality supervision as a key factor in the overall quality of studies at masters and doctoral levels (De la Rey 2009). Apart from institutional efforts (by research development offices, faculties and departments, in particular) and national workshops and conferences, no formal and coordinated supervision training and development programmes apparently exist in South Africa.

In view of a lack of such programmes, supervisors who attended a recent workshop on postgraduate supervision (CHAE 2009) were asked about their perceptions of what constitutes quality supervision.

At a recent international conference on postgraduate supervision held in South Africa and organised by the Centre for Higher and Adult Education at Stellenbosch University, participants were asked about their experiences of such conferences and how it might potentially contribute to their supervision practices. The next section elaborates on the findings from these two interventions.

7. Supervisor perceptions of and feedback on developmental interventions

7.1 A workshop intervention

In August 2009 twenty-one supervisors, representing six South African universities and thirteen disciplines, participated in a three-day workshop on postgraduate supervision in the Western Cape. The supervision experience of the participants varied from having supervised between one and seven postgraduate studies. The workshop programme included interactive participation in topical sessions such as problems and issues in postgraduate supervision; supervisor and student roles and responsibilities; assisting students with a research proposal; supervising a literature review; managing supervision; supervising international and distance students; formative assessment and feedback; examination criteria, and preparing students for oral examinations.

At the start of the workshop, before any intervention took place, the participating supervisors were asked to write down their views on the following statement: "Quality supervision means …". After completion of the workshop, supervisors were requested to reconsider what they had written earlier in response to the statement and amend their responses, if necessary. The responses were handed in anonymously and the assumption was that the workshop intervention could potentially influence the perceptions of the supervisors on what constitutes quality supervision. Their responses are shown in Table 3.

Table 3: Views of workshop participants on quality postgraduate supervision (n=21)

Views on quality before workshop	Views on quality before workshop
Quality supervision means …	Quality supervision means …
R1: To assist students to become independent researchers and successfully complete a thesis/dissertation of high standard.	R1: No change.
R2: To encourage a student to "dig deep" during his/her research, to pursue a logical "golden thread" in his/her argument, to make her/him proud of her/his work and also to make the supervisor proud.	R2: To communicate regularly with students throughout the supervision process. To face and sort out "administrative hassles".
R3: To help students grow, achieve their research goals and learn from their experiences.	R3: To keep effective records of communication with students.
R4: Sufficient support to complete a high-quality thesis in a minimum time and align the aims, vision and passion of the student with those of the supervisor.	R4: No change.
R5: To provide positive and valuable information and support to students and to encourage a life-long learning attitude.	R5: No change.
R6: To enrich the student as a person, to assist the student to become a specialist in his/her field and to be on top of the field of research. To guide the student towards success in achieving his/her qualification.	R6: No change.
R7: If both supervisor and student believe in the quality and integrity of the final product, one can talk of quality supervision.	R7: If the research process is well managed, quality supervision can be achieved.

Views on quality before workshop	Views on quality before workshop
Quality supervision means …	Quality supervision means …
R8: Quality supervision means to be an expert in the field in which the student is working, to give timely and relevant feedback, to be available for discussions and to encourage the student to make progress.	R8: To be a mentor to a student, to establish a relationship of trust, to be aware of policies regarding postgraduate supervision, to be aware of support to students and guide them towards using the support and to make ground rules clear to students right from the start. To promote studies relevant to contemporary issues.
R9: To act as a facilitator to the student, to inspire, lead by example and remain actively engaged in research by writing articles and presenting conference papers.	R9: To ensure that students exit the programme with confidence, encourage critical thinking and have a thirst for creating new knowledge on a continued basis – knowledge that can aid industry and the community for empowerment.
R10: To lead, guide, mentor and give direction to students in order to become scholars who can publish.	R10: To lead students towards academic, personal and professional integrity. To demonstrate excellent project management skills (supervisor).
R11: Spending dedicated time on a regular basis with students to guide their research activities towards their research objectives.	R11: I have learnt now that supervision is more than facilitating excellent research. It also involves personal relationships, effective time management as well as attending towards the psychological and emotional needs of students. I see supervision now in a holistic way, not merely in research terms.
R12: Having a platform to add value, to provide sufficient expertise and knowledge in the chosen area of students' research. Being up to date with relevant disciplinary knowledge, research methodology and helping the student towards a quality research product.	R12: Well-versed with the criteria for evaluating students' research products.
R13: The engagement of the supervisor to contribute to quality research products to a research community.	R13: No change.
R14: To guide students through processes that comply with objective assessment criteria and achieve research goals.	R14: Management of the research process to ensure transparency and integrity. Make assessment criteria explicit for students.

Views on quality before workshop	Views on quality before workshop
Quality supervision means …	Quality supervision means …
R15: To guide and facilitate student learning and growth to enable quality research and adequate, if not excellent, research products.	R15: No change.
R16: To provide proper guidance, particularly in the early stages of proposal writing and the research process.	R16: Continuous guiding and mentoring the research process. Making academic expectations and assessment criteria clear.
R17: Guiding students through the entire research process from inception of a study to graduation. Assisting students to develop research skills and to become researchers in their own right. This includes academic writing, designing and carrying out research.	R17: Maintaining academic integrity throughout and treat students as partners in the research process.
R18: Guiding students to complete their studies by encouraging independent thinking, motivation and constructive feedback.	R18: No change.
R19: To help students to complete their studies successfully. This also implies assisting through the stress and joys of becoming good researchers.	R19: Following best practices in postgraduate supervision.
R20: Being more knowledgeable about a topic so that a student can be guided properly. This means to be ahead in knowledge and in methodological options.	R20: I see myself now to be more than an expert in the field. This includes issues such as being able to relate well (professionally) to your students, providing support, being able to convey information and provide feedback and comments to students in an understandable manner and to encourage students towards hard work, perseverance and commitment.
R21: A process that is well-managed and provides students with a fulfilling research experience whereby they can make a positive contribution to research outputs in the discipline.	R21: A well-managed process whereby an experienced researcher provides guidance to an inexperienced student in order to ensure a fulfilling (successful) research experience that can contribute to a relevant research output.

Table 3 indicates that in at least two-thirds (n=14) of the cases, a change in perceptual attitude of what constitutes quality supervision emerged. The most important changes occurred in the following areas: moving from viewing a supervisor as being an expert researcher only to a stronger attitude on mentoring as a supervisory role (respondents 2, 8, 10, 11, 16, 20); a change from a product orientation to being process-orientated (respondents 7, 10, 11, 17, 20); a shift from little emphasis on research relevance to attaching more importance to relevance (respondents 8, 9, 20); towards an increased importance of project management processes (respondents 2, 3, 7, 10, 11, 14), and working with thesis (product) assessment criteria from the outset rather than later in the supervisory process (respondents 8, 12, 14, 16). In accordance with the findings of Brew (2001) and Pearson & Brew (2002) it also appears that a diversity of notions of research and scholarship prevailed in these responses. However, the majority of the group appears to have shifted towards a greater sensitivity for supervision processes and observing "the bigger picture" rather than viewing supervision as research training alone. Its essence is well reflected in the comments of respondent 11: "I see supervision now in a holistic way, definitely not merely in research terms". This is also prevalent in an observation by respondent 20: "I see myself to be more than an expert in the field. I need to be coach and mentor as well".

7.2 A conference intervention

In April 2009 an international conference on "Postgraduate supervision: theory and practice" was held in the Western Cape (CHAE 2009). The conference was preceded by three one-day workshops presented by international experts on three topics: working with doctoral students from start to finish; supervising across culture, and facilitating critical thinking for postgraduates. Ninety (mainly South African) supervisors participated in the three workshops, followed by a three-day conference attended by 185 supervisors and including five keynote addresses. Three of these were delivered by seasoned international supervisors and two by South Africans (one by the then Chief Executive Officer of the Council on Higher Education

and the other by the Vice-President of the National Science Foundation). Sixty-seven other papers, grouped into the following five topical categories, were also read: supervision as scholarship, supervisor challenges, student challenges, assessing and evaluating postgraduate work, and postgraduate support.

At the end of the conference, participants were asked to provide feedback on the value of the conference to each participant's learning gain, relevance to their personal supervisory situation and potential for implementation. Responses were recorded using a five-point Likert scale instrument ranging from 1 = Very poor to 5 = Excellent. The instrument also made provision for open type responses. Table 4 shows the number of responses in each case as well as the average rating on the relevant items.

Table 4: Responses from participants on the potential value of a conference intervention

Response item	1 Very poor	2 Poor	3 Average	4 Good	5 Excellent	Average rating
Learning gain	0	0	14	111	37	4.63
Relevance to personal situation	0	1	25	107	34	4.43
Potential for implementation	0	0	33	97	32	3.96

Open responses from conferees included a spectrum of references to perceived learning gain, contextual relevance and possibilities for implementation. The following excerpts are examples of these comments:

> Conferee 23: At the conference I have come to realise that postgraduate students have many challenges. As a supervisor one does not always think about this. I shall be much more sensitive to this issue in future without letting go of rigorous standards.
>
> Conferee 9: Postgraduate supervision seems indeed a form of scholarship in its own right. Really, not everybody can supervise – you need a person who has special skills and definitely not research skills only. The idea of supervision as scholarship has opened up new avenues for me.

> Conferee 78: Supervisors need opportunities like these for sharing and networking. I have gained tremendously from listening and talking to colleagues. Will recommend future conferences to my institution.
>
> Conferee 91: The balance of the conference (between theory and practice) was just right. Although some of the theoretical papers were not as deep as I would have expected, I have learnt from them. The international speakers have contributed a great deal to open new opportunities for supervision practice and I have a much better overall view now of what is expected.
>
> Conferee 121: I shall not focus so much on the thesis as research product in the future but also pay attention to the supervision process which is equally important. The Leshem paper on the 'magic circle of supervision' and considering assessment criteria up front was excellent. I have learnt a lot.

From the evidence rendered, the conference intervention example indicates a number of potentially powerful developmental benefits – in particular for novice and less experienced supervisors. The fact that response items such as learning gain and personal relevance scored ratings above an average of 4 is an indication of the development potential of such interventions. The majority of open responses confirmed this view. It is also true, however, that more research would be needed to determine whether such positive responses materialise in supervisory practices and whether students benefit from these. According to Trafford & Leshem (2008: 5-6), interventions that provide more holistic insight into, for instance, doctoral evaluation processes and their use for supervision processes are likely to have a positive effect on practice.

8. Discussion

It is obvious that more is at stake in postgraduate research supervision than research training only. Supervisors assess and approach their supervisory roles more critically as a result of developmental interventions. When the research training role of supervisors is broadened to include skills for mentoring, coaching and critical reflection, this appears to enhance the quality of supervision practice. Amid supervisor and student challenges, supervision practice needs to become more educative, implying supervision pedagogy – something which cannot be learnt through experience alone. Supervision professional

development, as planned and promoted at national levels in several countries, is probably the ideal. In South Africa, however, where no such schemes exist and where postgraduate student numbers are on the increase, interventions such as workshops, conferences and other options could, in the interim, be promoted.

Mainly drawing on the research of Brew (2001) and Pearson and Brew (2002), this article has shown that supervisors' conceptions of research, scholarship and supervision affect their practice. Development programmes and other forums can be mechanisms for surfacing these underlying beliefs, values and conceptions (Eley & Murray 2009: 53). Examples have indicated how supervisors' conceptions of "quality postgraduate supervision" might change after and because of interventions. This, in turn, might help supervisors to manage the often challenging transition from dependent students to independent researchers through postgraduate studies (cf also Wisker 2005: 93, 98).

In view of the importance of research on postgraduate supervision professional development and the current gaps that exist in this field, four salient points seem important to conclude this article.

- More research will be needed to investigate the developmental role of intellectual communities of practice in the formation of scholars. Walker *et al* (2008: 131) propose that the point is not simply to create occasions for such communities to be promoted but the intellectual and professional development of postgraduate students as stewards and their supervisors as scholars. Research is needed on the outcomes that these communities can produce and strategies on how participation, moving within and moving beyond intellectual communities can be enhanced. How to "learn about" and "learn to be" part of such communities (cf Brown & Duguid 2000: 128) seems challenging and needs further exploration for both students and supervisors.
- In rapidly changing environments and, in particular, in developing contexts such as South African higher education institutions, more research might be needed on how these changes impact on supervisory practices and what development strategies are required. Literature (Eley & Murray 2009: 49-53, Ryan & Zuber-

Skerrit 1999: 45) and feedback from workshops and conferences point to increasing challenges posed by supervising international students (in particular those from other African countries) and distance students, providing writing support for students, and supervising in culturally diverse contexts. Failure to provide better guidelines and pedagogy in this respect will negatively affect supervisors and institutions alike.

- Debate and increased clarity might be needed regarding academic and other expectations at the masters and doctoral study levels in South Africa. The level descriptors for levels 9 and 10 qualifications on the Higher Education Qualifications Framework (DoE 2008) provide some clues, but this is not nearly sufficient for supervisors (novices, in particular) or supervisor development activities. Clearer notions of, for instance, "doctorateness" (cf Traford & Leshem 2008: 89) are needed to provide conceptual frameworks and clarity on "threshold concepts" such as "mastery" and "doctorateness" to guide supervision practice and development. It is common knowledge that there are considerable discrepancies between the levels of "doctorateness" in South African universities, and what goes for excellence in one institution might be considered mediocre in another. Research to provide greater clarity in this respect can only benefit the professional developmental aims regarding postgraduate supervision.
- It appears not to be uncommon that students' and institutions' expectations of supervisors change over time. For instance, to strike a healthy balance between freedom and neglect in supervision is a constant challenge for both supervisors and students. Therefore the level and amount of support provided to supervisors should be constantly monitored and adjusted. Workload demands, supervisor experience versus inexperience in departments and faculties, the kinds of information and policy support available to supervisors and how supervisors participate in and contribute to development opportunities are all important institutional research functions to promote the quality of supervision practice, as indicated by several studies (Manathunga 2005: 213, Mackinnon 2004: 397). This will also be increasingly needed in South Africa.

9. Conclusion

The actual professional development programme of any individual supervisor, or person with responsibilities for the coordination of postgraduate research programmes, will vary in scope, sequence and presentation. For this reason, it is essential that opportunities for professional development be provided flexibly and include choices such as formal programmes, workshops, conferences, reflective practice and others. Whatever the path any individual supervisor takes, the important outcome from such a programme should be an adaptable, flexible supervisor whose skills are grounded in an awareness of the broader issues associated with the induction of research students, not only into the academic community, but in a world which Barnett (1997: 122) has characterised as multi-complex, uncertain and plural.

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